

### Claims

- 1    1.    Method for recognizing speech,
  - wherein a pronunciation space (PS) of possible pronunciation rules and/or sets thereof is provided,
  - wherein in said pronunciation space (PS) an at least approximative set
  - 5 of pronunciation rules (APR) is determined and/or generated in accordance with a current pronunciation (CP) and/or accent of a current speaker, and
  - wherein at least one current lexicon (CL) or a dictionary of pronunciation variants which is employed for recognition is adapted to said current speaker by applying at least said approximative set of pronunciation rules
  - 10 (APR) to it, thereby at least including speaker specific pronunciation variants to said current lexicon (CL).
- 15    2.    Method according to claim 1, wherein said step of adapting said current lexicon (CL) is carried out repeatedly, in particular after completed recognition steps and/or obtained recognition results.
- 20    3.    Method according to claim 1 or 2, wherein said step of determining and/or generating said approximative set of pronunciation rules (APR) is carried out repeatedly, so as to iteratively find an approximative set of pronunciation rules (APR) fitting best to said current pronunciation (CP) and/or accent of said current speaker, in particular to consider temporal pronunciation and/or accent variations of said current speaker and/or in particular after completed recognition steps and/or obtained recognition results.
- 25    4.    Method according to anyone of the preceding claims, wherein said pronunciation space (PS) is generated and/or provided in a pre-processing step, in particular in advance in a recognition process.
- 30    5.    Method according to anyone of the preceding claims, wherein said pronunciation space (PS) is derived from a plurality and/or limited number of so-called Eigenpronunciations.
6.    Method according to claim 5, wherein said Eigenpronunciations are derived from, contain and/or are representative for certain and given pronunciation rules and/or sets thereof, in particular for at least one non-native

1 speaker of at least one target language (TL) with at least one source language (SL) as a mother or native tongue or language of said current speaker.

7. Method according to anyone of the preceding claims, wherein said  
5 pronunciation space (PS) is modified during the process of recognition, in particular after completed recognition steps and/or obtained recognition results and/or in particular by modifying said Eigenpronunciations.

8. Method according to anyone of the preceding claims, wherein said step  
10 of determining and/or generating said approximative set of pronunciation rules (APR) comprises a step of determining a pronunciation-related position of a current speaker in said pronunciation space (PS), in particular in accordance with a current pronunciation (CP) and/or accent of said current speaker.

15 9. Method according to anyone of the preceding claims, wherein said approximative set of pronunciation rules (APR) is chosen as a given and specific set of pronunciation rules in said pronunciation space (PS), in particular as a given and specific Eigenpronunciation thereof, which is a next neighbour of the speaker's current pronunciation (CP), in particular with  
20 respect to said pronunciation-related position.

10. Method according to claim 9, wherein said property of being a next neighbour is evaluated by means of a certain given measure or distance function, in particular by an Euclidean distance, in said pronunciation space  
25 (PS).

11. Method according to anyone of the preceding claims, wherein said approximative set of pronunciation rules (APR) is chosen as a weighted mixture, superposition and/or the like of given pronunciation rules, sets,  
30 derivatives, and/or components thereof in said pronunciation space (PS), in particular of said Eigenpronunciations.

12. Method according to anyone of the preceding claims, wherein said  
35 current lexicon (CL) is in each case at least partially based on and/or derived from a starting lexicon (SL) or initial lexicon, in particular on a canonical lexicon essentially containing canonical pronunciation variants of native speakers of a given target language (TL) only and/or in particular in the case of chang-

1 ing to a different and/or new speaker.

13. Method according to anyone of the preceding claims, wherein the step of  
determining and/or generating said approximate set of pronunciation rules  
5 (APR) is at least partially based on and/or derived from a comparison of the  
current pronunciation (CP) with a canonical pronunciation, in particular with  
respect to a given utterance, recognition result and/or the like and/or in  
particular in the beginning of a recognition session with a different and/or  
new speaker.

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14. Method according to claim 13, wherein said comparison is essentially  
based on a recognition step using said starting or canonical lexicon (SL) as  
said current lexicon (CL).

15 15. Method according to claim 13 or 14, wherein for said comparison at  
least one recognition step is repeated using a phone or phoneme recognizer, so  
as to yield a sequence of actually uttered phones, phonemes, or the like.

16. Method according to anyone of the claims 13 to 15, wherein for said  
20 comparison said current pronunciation (CP) of said current speaker is com-  
pared to a canonical pronunciation, in particular so as to generate an initial  
set of pronunciation rules (IR) and/or to locate the pronunciation-related posi-  
tion of said current speaker in said pronunciation space (PS).

25 17. Method according to anyone of the preceding claims, wherein from said  
current lexicon (CL) recognition related information, pronunciation variants  
and/or the like which are not covered by the speaking behaviour and/or by the  
current pronunciation of the current speaker are removed, so as to decrease  
the amount of data to be evaluated.

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18. Method according to anyone of the preceding claims, which is designed  
for a plurality of source languages (SL) and/or of target languages (TL), in  
particular with respect to said Eigenpronunciations.

35 19. System for recognizing speech which is capable of performing the  
method according to anyone of the claims 1 to 18.

- 1   **20.** Computer program product, comprising computer program means  
adapted to perform and/or realize the method for recognizing speech according  
to anyone of the claims 1 to 18 and/or the steps thereof when it is executed on  
a computer, a digital signal pro-cessing means and/or the like.

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